REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 16-28 are pending in this application. Claim 25 stands withdrawn from consideration. New dependent claim 28 is added for examination. No new matter is believed to be added as the features in new dependent claim 28 are believed to be clear from the original disclosure, see for example Figures 1-26.

Claims 16-24 and 26-27 were rejected under 35 U.S.C. § 112, second paragraph. Claims 16-17 and 19-22 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. patent 6,419,446 to Kvasnak et al. (herein "Kvasnak"). Claims 16-17, 19-22 and 27 were rejected under 35 U.S.C. § 103(a) as the publication "Controlling Secondary-Flow Structure by Leading-Edge Airfoil Fillet and Inlet Swirl to Reduce Aerodynamic Loss and Surface Heat Transfer" to Shih et al. (herein "the Shih publication"). Claims 23 and 27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kvasnak in view of U.S. Patent Application Publication No. 2002/0182067 to Tiemann. Claim 24 was rejected under 35 U.S.C. § 103(a) as unpatentable over Kvasnak in view of U.S. Patent 3,959,966 to Pearce. Claim 26 was rejected under 35 U.S.C. § 103(a) as unpatentable over Kvasnak in view of U.S. patent 3,843,279 to Crossley. Claim 18 was noted as allowable if rewritten to overcome the rejections under 35 U.S.C. § 112, second paragraph, and to include all of the limitations of its base claim and any intervening claims.

Initially, Applicants gratefully acknowledge the early indication of the allowable subject matter in claim 18.

Addressing first the rejection of claims 16-24 and 26-27 under 35 U.S.C. § 112, second paragraph, that rejection is traversed by the present response as now discussed.

The claims are herein amended to clarify the language noted as unclear. The claims now initially recite "a wall surface" and then at subsequent points refer to "the wall surface", to clarify the antecedent basis for that term.

Claim 16 also clarifies the reference to the "working fluid". Claim 21 no longer recites the term "which is". Claim 26 no longer recites the term "thereof".

In view of the presently submitted claim amendments, applicants respectfully submit each of the claims as currently written is proper under 35 U.S.C. § 112, second paragraph.

Addressing now the above-noted prior art rejections, the claims as currently written are believed to be allowable over the applied art.

Addressing first the rejections citing Kvasnak as the primary reference, applicants respectfully submit the outstanding rejections are misconstruing the disclosures in Kvasnak relative to the claimed invention.

The claims are directed to a turbine blade structure including a cover portion "formed as a protruded portion having a ***concave curved surface*** toward a height direction of the front edge portion of the blade body from a base portion of the upstream side of the flow with the working fluid" (emphasis added), as specifically recited in independent claim 16. Applicants respectfully submit such a concave curved surface is neither taught nor suggested by Kvasnak, in contrast to the position taken in the Office Action.

The outstanding Office Action cites Kvasnak to disclose such a concave curved surface as surfaces 52, 54 (Office Action of July 24, 2008, bottom of page 4). Applicants submit those surfaces 52, 54 in Kvasnak are not concave curved surfaces towards a height direction of the front edge portion of the blade body from a base portion on the upstream side of the flow of the working fluid.

Kvasnak specifically discloses the use of a "fillet" 48 having a shape of a cusp, and the shape is particularly divided into two portions, a pressure side 52 and a suction side 54, with a dividing plane 56 interposed between those two sides 52, 54.

Applicants respectfully submit such a suction side 54 and pressure side 52 of the fillet 48 do not have the above-described concave curved surface. With a cover portion having a substantially concave fillet shape as in the claimed invention, that is having a recessed fillet shape, a flow can be effectively controlled. For example, even if a flow angle of a fluid is offset from a design point by a change of a load, no dividing plane is defined with the claimed concave curved surface, and thereby a secondary flow can be suppressed.

In contrast to the claimed structure, according to the structure in Kvasnak having a pressure side 52 and a suction side 54 of the fillet 48, if a stagnation point is offset from the dividing plane 56, a flow is separated at that portion, which will increase a secondary flow. Such a secondary flow can cause problems, which the present invention can suppress.

In other words, in Kvasnak a dividing plane is defined, whereas the claimed invention can be applicable to various changes of a flow angle.

In view of the foregoing comments, Applicants respectfully submit the claims as currently written positively recite a concave curved surface neither taught nor suggested by Kvasnak.

Moreover, no disclosures in any of the secondary cited references to Tiemann, Pearce, or Crossley were cited with respect to the above-noted concave curved surface, and no disclosures in those further references are believed to cure the above-noted deficiencies in Kvasnak.

With respect to the further cited art to the Shih publication, applicants respectfully submit the Shih publication also discloses a fillet, but applicants submit the Shih publication also does not disclose or suggest a cover portion:

> ...formed as protruded portion having a concave curved surface towards a height direction of the front edge portion of the blade body from a base portion of the upstream side of the flow of the working fluid.

Thereby, applicants respectfully submit independent claim 16, and thereby the claims dependent therefrom, also recite features neither taught nor suggested by the Shih publication.

In view of the present response, applicants respectfully submit the claims as currently written are proper under 35 U.S.C. § 112, second paragraph, and patentably distinguish over the applied art.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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